

Application No. 10/624,967
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Listing of the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

1-68. Cancelled.

69. (Previously Presented) A method, comprising:
focusing or placing a peak concentration of electromagnetic energy into an interaction zone above a target;
outputting atomized fluid particles from a plurality of atomizers into the interaction zone; and
at least a portion of the atomized fluid particles in the interaction zone highly absorbing at least a portion of the electromagnetic energy, expanding, and imparting disruptive forces onto the target.

70. (Previously Presented) The method as set forth in claim 69, wherein the focusing or placing of a peak concentration of electromagnetic energy into an interaction zone comprises focusing or placing a peak concentration of electromagnetic energy into an interaction zone located at an output end of a fiber guide tube.

71. (Previously Presented) The method as set forth in claim 70, wherein:
the outputting of atomized fluid particles from a plurality of atomizers comprises outputting atomized fluid particles from a plurality of atomizers toward the output end of the fiber guide tube; and
atomized fluid particles from a first one of the plurality of atomizers combine with atomized fluid particles from a second one of the plurality of atomizers in the interaction zone.

72. (Previously Presented) The method as set forth in claim 70, wherein:
the outputting of atomized fluid particles from a plurality of atomizers comprises outputting atomized fluid particles from a plurality of atomizers toward the output end of the fiber guide

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tube; and

an angle of incidence of atomized fluid particles from a first one of the plurality of atomizers is different from an angle of incidence of atomized fluid particles from a second one of the plurality of atomizers.

73. (Previously Presented) The method as set forth in claim 72, wherein the fiber guide tube is disposed between the first atomizer and the second atomizer.

74. (Previously Presented) The method as set forth in claim 72, wherein:
each of the plurality of atomizers has an output axis; and
the output axes all point from the respective atomizers to a general vicinity of the interaction zone.

75. (Previously Presented) The method as set forth in claim 74, wherein the output axes intersect a longitudinal axis of the fiber guide within the interaction zone.

76. (Previously Presented) The method as set forth in claim 69, wherein atomized fluid particles from a first one of the plurality of atomizers combine with atomized fluid particles from a second one of the plurality of atomizers in the interaction zone.

77. (Previously Presented) The method as set forth in claim 69, wherein an output axis of a first one of the plurality of atomizers is not parallel to an output axis of a second one of the plurality of atomizers.

78. (Previously Presented) The method as set forth in claim 69, wherein:
each of the plurality of atomizers has an output axis; and
the output axes all point from the respective atomizers to a general vicinity of the interaction zone.

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79. (Previously Presented) The method as set forth in claim 78, wherein:
the electromagnetic energy is directed along a path toward the target surface; and
the output axes intersect the path within the interaction zone.
80. (Previously Presented) The method according to Claim 69, wherein the step of outputting atomized fluid particles from a plurality of atomizers includes a step of outputting atomized fluid particles from atomizers that are connected to air supply and water supply lines, wherein air and water are mixed by the atomizers to form the atomized fluid particles.
81. (Previously Presented) The method according to Claim 80, wherein each air supply line is operated under a relatively high pressure and each water supply line is operated under a relatively low pressure.
82. (Previously Presented) The method according to Claim 69, wherein the atomized fluid particles have sizes narrowly distributed about a mean value.
83. (Previously Presented) The method as set forth in Claim 69, wherein the electromagnetic energy has one of a wavelength within a range from about 2.69 to about 2.80 microns and a wavelength of about 2.94 microns.
84. (Previously Presented) The method as set forth in Claim 69, wherein the electromagnetic energy is generated by one of an Er:YAG, an Er:YSGG, an Er,Cr:YSGG and a CTE:YAG laser.
85. (Previously Presented) The method as set forth in Claim 69, wherein the target surface comprises one of tooth, bone, cartilage and soft tissue.
86. (Previously Presented) The method as set forth in Claim 69, wherein the atomized fluid particles comprise water.

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87. (Previously Presented) The method as set forth in Claim 69, wherein the electromagnetic energy is generated by one of an Er, Cr:YSGG solid state laser having a wavelength of about 2.789 microns and an Er:YAG solid state laser having a wavelength of about 2.940 microns.

88. (Previously Presented) The method as set forth in Claim 69, wherein the electromagnetic energy is highly absorbed by at least a portion of the atomized fluid particles to cause at least part of the portion of atomized fluid particles to expand and impart disruptive mechanical forces to the target surface.

89. (Previously Presented) The method as set forth in Claim 69, wherein the atomized fluid particles are simultaneously output from the plurality of atomizers into the interaction zone.

90. (Previously Presented) The method according to Claim 53, wherein the user control includes a dial for controlling a repetition rate of the electromagnetic energy.

91. (Previously Presented) The method according to Claim 53, wherein the user control includes a dial for controlling an average power of the electromagnetic energy.

92. (Previously Presented) The method as set forth in claim 69, wherein the plurality of atomizers is two atomizers.

93. (Previously Presented) The method as set forth in claim 74, wherein the output axes intersect a longitudinal axis of the fiber guide near or in the interaction zone.

94. (Previously Presented) The method as set forth in claim 78, wherein:
the electromagnetic energy is directed along a path toward the target surface; and
the output axes intersect in a general vicinity of the path near or in the interaction zone.